UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,920	09/05/2003	Craig A. Parsons	1010.8126UU	8364

38846 7590 09/20/2005

CARLSON, CASPERS, VANDENBURGH & LINDQUIST
225 SO. 6TH STREET
SUITE 3200
MPIS, MN 55402

EXAMINER	
DUPUIS, DEREK L	

ART UNIT	PAPER NUMBER
2883	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	10/656,920	PARSONS ET AL.
	Examiner	Art Unit
	Derek L. Dupuis	2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07 July 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 March 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/29/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. On 3/29/2005, the office received an IDS, 7 pages of remarks by applicant, and amendments to the drawings, specification, and the claims. The amendment to the claims was found to be non-compliant and an office action stating as much was mailed to applicant on 6/15/2005. On 7/7/2005, the office received a corrected claims listing. Claims 1-26 are pending in the case.

2. Applicant's arguments, see page 9, in combination with the amendments to the specification filed 3/29/2005, with respect to the objection to the specification have been fully considered and are persuasive. The objection to the specification has been withdrawn.

3. Applicant's arguments, see page 9, in combination with the amendments to the claims filed 7/7/2005, with respect to the objections to claims 13 and 26 have been fully considered and are persuasive. The objections to claims 13 and 26 have been withdrawn.

4. Applicant's arguments filed 7/7/2005 and 3/29/2005 have been fully considered but they are not persuasive. In response to applicant's argument that Cormier's invention is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Cormier's invention is reasonably pertinent to the field of endeavor as it relates to optical imaging (see abstract). In page 11, applicant argues that the references, neither individually or in combination teach or suggest that a filter is used to transmit a portion of the signal light to the detector while at the

same time reflecting the remainder of the signal light to the output port. As can be seen in figure 3 of Kato et al a portion of light (at 1.55 um) is transmitted to the detector and a portion of the light (at 1.48 um) is reflected to the output port. Applicant also argues in pages 12 and 13 that the light reflected by the filter would not be characterized by the filter spectral response. The combination of Kato et al and Cormier et al includes a filter with a filter characteristic selected to result in a uniform detector spectral response (see column 3, line 65 to column 4, line 6 of Cormier). Therefore, the light reflected by the filter would be characterized by the filter spectral characteristic. For these reasons the rejection under 35 U.S.C. 103 remains and is repeated below with modifications to address the added claim limitations.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on 3/29/2005 was filed after the mailing date of the first office action on the merits on 11/29/2004. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

6. The drawings were received on 3/29/2005. These drawings are objected to by the examiner. While the replacement drawings correct several of the informalities discussed in the office action mailed 11/29/2004, they fail to correct one of the informalities noted in the office action. The objection to the drawings based on this informality has been repeated below.

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "218b" in figure 2A. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the

specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 1-3 and 6-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Kato et al (JP 09304647 A)*** and further in view of ***Cormier et al (US 4,304,486 A)***.

10. The Kato et al reference was translated using a machine translator. A copy of this translation has been included in this office action.

11. Regarding claim 1, Kato et al teach a monitor unit for monitoring light within a wavelength range and propagating within an optical fiber as shown in figure 3. The unit comprises an input port (7), an input/output port (2), a focusing unit (21), and a filter unit (22 and 23). The input port (7), the input/output port (2), and the focusing unit (21) are disposed on a first side of the filter unit (22 and 23) so that some of light from the input port (7 and 2) passes

through the focusing unit (21) and into the filter unit (22 and 23) and so that some of the light is reflected by the filter unit (22 and 23) passing through the focusing unit (21) to the output port (2). Kato et al do not explicitly teach a photodetector unit disposed on a second side of the filter unit (22 and 23) or that the photodetector unit has at least one photodetector element having a detector spectral response over the wavelength range. Kato also does not teach that the filter unit (22 and 23) has a spectral transmission characteristic selected to partially compensate for non-uniformity in the detector spectral response so as to result in a more uniform monitor spectral response. Cormier et al teach receiving an optical signal with a photodetector unit with at least one photodetector element having a detector spectral response over the spectral range. Cormier et al also teach placing a filter ahead of the photodetector unit to result in a uniform response by the filter-detector combination within the spectral range. It would have been obvious to one of ordinary skill in the art at the time of invention to dispose a photodetector unit with at least one photodetector element having a detector response over the spectral range at the output of the monitor and to use a filter with a selected spectrum transmission characteristic to provide more uniform device spectral response as taught by Cormier et al for better detection (see column 4 lines 1-6).

12. Regarding claim 2, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Neither Kato et al nor Cormier et al teach that the monitor spectral response is flat to within ±3% over the wavelength range of 100 nm. It would have been obvious to one of ordinary skill in the art at the time of invention to make the monitor spectral response flat to within ±3% over the wavelength range of 100 nm since it has been held that where the

general conditions of a claim are disclosed in the prior art, discovering an optimum or workable value or range involves only routine skill in the art. In re Aller, 105 USPQ 233.

13. Regarding claim 3, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach that the wavelength range includes 1550 nm in figure 3.

14. Regarding claim 6, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach that the filter unit includes a multilayer reflective coating. Neither Kato et al nor Cormier et al teach that the monitor spectral response is flat to within ±3% over the wavelength range of 100 nm. It would have been obvious to one of ordinary skill in the art at the time of invention to make the monitor spectral response flat to within ±3% over the wavelength range of 100 nm since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering an optimum or workable value or range involves only routine skill in the art. In re Aller, 105 USPQ 233. Also, neither Kato et al nor Cormier et al explicitly teach that there are no more than 13 layers in the filter. It would have been obvious to one of ordinary skill in the art at the time of invention to use less than 13 layers because it is common knowledge that a single coating layer can be used as a filter.

15. Regarding claim 7, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach in figure 3 that the optical signal is transmitted from the filter unit (22 and 23) through a lens (12) to the output where the photodetector unit taught by Cormier would be disposed. It is common practice in the art to place receiving elements at the output of a device. It would have been obvious to one of ordinary skill in the art at the time of invention to remove the lens (12) so as to result in the optical signal passing

directly from the filter unit (22 ad 23) to the photodetector unit, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In re Karlson, 136 USPQ 184. Figure 3 of Kato et al shows that the light beam from the filter unit is already collimated and directed towards the desired output location making the lens (12) unnecessary.

16. Regarding claims 8 and 9, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach in figure 9 a wavelength selection unit (33 and 32) disposed between the filter unit (22 and 23) and the output (to the photodetector unit). The wavelength selection unit (33 and 32) receives light from the filter unit (22 and 23) and separates the light at different channel wavelengths into separate channel beams as shown in the figure. Because Kato et al show multiple output signals, it would be obvious to one of ordinary skill in the art that the photodetector unit be an array of photodetecting elements (one per channel signal), since it has been held that that duplication of essential working parts of a device involves only routine skill in the art. St. Regis Paper co. v. Bemis Co., 193 USPQ 8.

17. Regarding claims 10 and 11, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach that the input port is an optical fiber (7). Light from the first port (7) that is reflected by the filter unit (22 and 23) is focused into an end of another optical fiber (2) by the focusing unit (21) as shown in figure 3.

18. Regarding claims 12, 13, and 25, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al teach that the light propagating from the first port (7) is collimated by the focusing unit (21) and then propagates towards the filter unit (22 and 23) at a direction that is non-parallel to the optical axis of the focusing unit. Kato et al

also teach that the light passing through and then out of the filter unit (22 and 23) travels at a direction that is parallel with the optical axis of the focusing unit (21) as shown in figure 3.

19. Regarding claim 14, Kato et al teach an optical system shown in figure 1 comprising an optical transmitter producing output light, an optical receiver receiving a portion of the output light and an optical fiber link coupling between the transmitter and the receiver and including a monitor unit taught by Kato et al in view of Cormier et al as discussed above (in reference to claim 1).

20. Regarding claim 15, Kato et al in view of Cormier et al teach an optical system as discussed above in reference to claim 14. Kato et al teach that one or more optical amplifier units (1 and 5) are disposed on the fiber optic link between the transmitter and the receiver as shown in figure 1.

21. Regarding claims 16 and 17, Kato et al in view of Cormier et al teach an optical system as discussed above in reference to claim 14. Kato et al do not explicitly teach optical combining and separating elements. However, Kato et al teach that the invention relates to multiplexing two or more optical signals. Therefore, inputting additional wavelengths using additional optical sources with a combining element in the first light path in Kato et al would have been an obvious way to transmit more signals in the same optical fiber. Also, using optical separating elements to separate received wavelengths would have been obvious to one having ordinary skill in the art at the time of invention for the purpose of further processing the signals seperatly.

22. Regarding claim 18, Kato et al in view of Cormier et al teach an optical system as discussed above in reference to claim 14. The monitor device taught by Kato et al is by definition an optical ADD/DROP device.

23. Regarding claim 19, Kato et al teach in figure 3 a method of monitoring light within a wavelength range propagating along an optical fiber comprising transmitting the light from the fiber (7 and 2) through a focusing unit (21) to form a collimated beam propagating towards a filter unit (22 and 23). A portion of the collimated beam is transmitted through the filter unit (22 and 23) as shown in the figure. The filter reflects light characterized by the filter spectral characteristic as shown in figure 3 to an output (2). Kato et al do not explicitly teach a photodetector unit having a detector spectral response receives the collimated light from the filter unit (22 and 23). Kato also does not teach that the filter unit (22 and 23) has a spectral transmission characteristic selected to partially compensate for non-uniformity in the detector spectral response so as to result in a more uniform monitor spectral response. Cormier et al teach receiving an optical signal with a photodetector unit with a detector spectral response over the spectral range. Cormier et al also teach placing a filter ahead of the photodetector unit to result in a uniform response by the filter-detector combination within the spectral range. It would have been obvious to one of ordinary skill in the art at the time of invention to receive the output light with a photodetector unit having a detector response over the spectral range and to use a filter with a selected spectral transmission characteristic to provide more uniform device spectral response as taught by Cormier et al for better detection (see column 4 lines 1-6).

24. Regarding claim 20, Kato et al in view of Cormier et al teach a method of monitoring light as discussed above in reference to claim 19. Kato et al teach that the wavelength range includes 1550 nm in figure 3.

25. Regarding claim 21, Kato et al in view of Cormier et al teach a method of monitoring light as discussed above in reference to claim 19. Kato et al teach in figure 3 that the optical

signal is transmitted from the filter unit (22 and 23) through a lens (12) to the output where the photodetector unit taught by Cormier would be disposed. It is common practice in the art to place receiving elements at the output of a device. It would have been obvious to one of ordinary skill in the art at the time of invention to remove the lens (12) so as to result in the optical signal passing directly from the filter unit (22 ad 23) to the photodetector unit, since it has been held that omission of an element and its function in a combination where the remaining elements perform the same function as before involves only routine skill in the art. In re Karlson, 136 USPQ 184. Figure 3 of Kato et al shows that the light beam from the filter unit is already collimated and directed towards the desired output location making the lens (12) unnecessary.

26. Regarding claim 22, Kato et al in view of Cormier et al teach a method of monitoring light as discussed above in reference to claim 19. Kato et al teach in figure 9 a wavelength selection unit (33 and 32) disposed between the filter unit (22 and 23) and the output (to the photodetector unit). The wavelength selection unit (33 and 32) receives light from the filter unit (22 and 23) and separates the light at different channel wavelengths into separate channel beams as shown in the figure. Because Kato et al show multiple output signals, it would be obvious to one of ordinary skill in the art that the photodetector unit be an array of photodetecting elements (one per channel signal), since it has been held that that duplication of essential working parts of a device involves only routine skill in the art. St. Regis Paper co. v. Bemis Co., 193 USPQ 8.

27. Regarding claim 23, Kato et al in view of Cormier et al teach a method of monitoring light as discussed above in reference to claim 19. Light from the first port (7) that is reflected by

the filter unit (22 and 23) is focused into an end of another optical fiber (2) by the focusing unit (21) as shown in figure 3.

28. Regarding claim 24, Kato et al in view of Cormier et al teach a method of monitoring light as discussed above in reference to claim 19. Kato et al teach that the light propagating from the first port (7) is collimated by the focusing unit (21) and then propagates towards the filter unit (22 and 23) at a direction that is non-parallel to the optical axis of the focusing unit.

29. Regarding claim 26, Kato et al in view of Cormier et al teach a device for monitoring light within a wavelength range propagating along an optical fiber a method for monitoring light as discussed above (in reference to claims 1 and 19). Kato et al also teach that the focusing unit (21) collimates the light beam that propagates towards the filter unit (22 and 23).

30. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over ***Kato et al (JP 09304647 A)*** in view of ***Cormier et al (US 4,304,486 A)*** as applied to claim 1 above, and further in view of ***Hrycin et al. (US 5,099,359 A)***.

31. Regarding claim 4, Kato et al in view of Cormier et al teach a monitor unit as discussed above in reference to claim 1. Kato et al also teaches the filter unit includes a multilayer reflective coating (see paragraph 14). Neither Kato et al nor Cormier et al teach that the coating has alternating layers of TiO_2 and SiO_2. Hrycin et al teach an optical filter with alternating layers of TiO_2 and SiO_2. It would have been obvious to one of ordinary skill in the art at the time of invention to use the optical filter with multilayer reflective coating having alternating layers of TiO_2 and SiO_2 as taught by Hrycin et al as the optical filter unit in the monitor unit taught by Kato et al in view of Cormier et al. Motivation to do this would be to be able to design a filter

with a desired spectral transmittance characteristic and system detector spectral response characteristics (see column 3, lines 13-19).

32. Regarding claim 5, Kato et al in view of Cormier et al and in further view of Hrycin et al teach a monitor unit as discussed above in reference to claim 4. Hrycin et al also teach that more than 75% of the layers have an optical thickness of a quarter-wavelength of the predetermined design wavelength as can be seen in tables 1-3.

Double Patenting

33. The provisional double patenting rejection made in the office action mailed 11/29/2004 is withdrawn since the conflicting claims in application 09/999,533 were canceled.

Conclusion

34. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Derek L. Dupuis whose telephone number is (571) 272-3101. The examiner can normally be reached on Monday - Friday 8:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Derek L. Dupuis
Group Art Unit 2883

Frank G. Font
Supervisory Patent Examiner
Technology Center 2800